

REMARKS/ARGUMENTS

Reconsideration of this application is respectfully requested.

The provisional election to prosecute the invention of Group I, claims 1-10, is affirmed.

Claims 1 through 10 are pending in the application. Claims 15 through 18 are added, and claims 11 through 14 are canceled. No additional fee is required. However, if any fee is due, please charge Deposit Account Number 23-2656.

Claims 1-10 have been rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Grumel et al. [286 MACROMOL. MATER. ENG. 480-87 (2001)].

Grumel et al. reported:

Linear 1-olefins from 1-pentene to 1-octadecene are polymerized by non-stereo specific Cp_2HfCl_2 (1), syndiospecific $\text{Me}_2\text{C}(\text{Cp})(9\text{-fluorenyl})\text{ZrCl}_2$ (2) and isospecific $\text{Et}(\text{Ind})_2\text{ZrCl}_2$ (3) catalysts in the presence of MAO. The molecular weight of the resulting polymers (GPC) is highly dependent on the nature of the catalyst, but more or less independent of the monomer chain length. The stereoregularity of the poly(1-olefins) obtained with 2 and 3 as determined by NMR spectroscopy decreases linearly with increasing monomer chain length. A decrease in isotacticity occurs for the poly(1-olefins) synthesized with 3 when increasing the catalyst concentration. Vinylidene 1,2-disubstituted and 1,1,2-trisubstituted double bonds attributed to different chain termination mechanisms are generated during the polymerization process.

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The Examiner has taken the position that the claims of the present application, which are product-by-process claims, are unpatentable even though the prior product was made by a different process. In other words, product-by-process claims are *per se* unpatentable. This is clearly incorrect. It is well settled that product-by-process claims are acceptable and patentable if there are features of the product that cannot be adequately described by means other than the process by which they were made.

In a polymeric product it is not possible to give a precise description of the polymer because the overall polymer will be composed of polymer chains of varying length, differing end groups, and/or differing degrees of branching, etc. Indeed, one often finds variations in two polymeric products made in different batches using the same process. In the examples of the present application, it has been clearly shown by means of comparative examples that products made using similar, but different, process steps have different properties. The Examiner's attention is directed to Example 1 and Comparative Example D of the present application. In these two examples, polydecenes were prepared employing very similar, although not identical, processes, the major difference being that *meso*-Me₂Si(2-MeInd)₂ZrCl₂ was used as the catalyst in Example 1, while *rac*-Me₂Si(2-MeInd)₂ZrCl₂ was used as the catalyst in comparative Example D. These two compounds are very similar, and much more similar to each other than either is to any of the catalysts employed by Grumel et al. Nonetheless, as seen in Table 3 of the present application, the physical properties of the polydecenes they produced were substantially different. It is not possible to describe the cause of this difference by any means other than reference to the processes by which they were made. Undeniably, *meso*-Me₂Si(2-MeInd)₂ZrCl₂ provides a product that is in some

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unknown way different from the product provided by *rac*-Me₂Si(2-MeInd)₂ZrCl₂. Thus, it is submitted that in the present case, defining a product by means of the process by which it is made is perfectly proper and distinguishes that product over those of the prior art.

Those skilled in the art, upon seeing the differences in the polymers produced by these two very similar catalysts would certainly not expect the products produced by Grumel et al., which employs a much different catalyst, to be more similar to those employing *meso*-Me₂Si(2-MeInd)₂ZrCl₂ than are the products made by using *rac*-Me₂Si(2-MeInd)₂ZrCl₂.

With regard to the process then, the reference neither discloses nor suggests the presence of hydrogen during the polymerization, it neither discloses nor suggests the advantages to be gained by the use of *meso* catalysts, rather than racemic, and it neither discloses nor suggests the novel and unobvious lubricant compositions currently claimed in claims 7 - 10 and 15 - 18. There is no mention made of lubricants at all.

Accordingly, it is requested that the rejection of claims 1-10 under U.S.C.102(b) as anticipated by, or, in the alternative, under 35 U.S.C. 103(a) as obvious over, Grumel et al. be withdrawn.

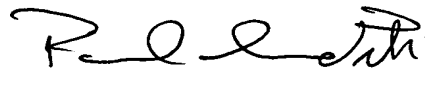
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In view of the foregoing, it is submitted that this application is now in condition for allowance and an early Office Action to that end is earnestly solicited.

Respectfully submitted,

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